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FROM: Jay P. Lessler

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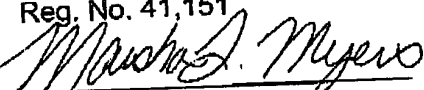
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PATENT TRADEMARK OFFICE

Docket No: 2136/0G684

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Jose GUXA ARDERIU et al.

Serial No.: 09/499,207

Art Unit: 1742

Confirmation No.: 9917

Filed: February 7, 2000

Examiner: S. Ip

For: MANUFACTURE OF COPPER MICROALLOYS

DECLARATION OF DR. FERRAN ESPIELL

Hon. Commissioner of
Patents and Trademarks
Washington, DC 20231

Sir:

I, Dr. Ferran Espiell, declare that:

1. I am over 21 years of age.
2. I am a co-inventor of the above-identified U.S. patent application.
3. I received a Ph.D. from the University of Barcelona and currently am a full professor at the University of Barcelona.


4. The following experiment was conducted under my supervision and control.

5. The three copper microalloys having the following compositions were prepared:

Element	Sample 1 (ppm of element)	Sample 2 (ppm of element)	Sample 3 (ppm of element)
Zn	22.5	22.5	25.0
Pb	196.0	182.0	208.0
Sn	103.9	103.0	92.5
P	<0.8	<0.8	0.7
Mn	2.1	2.1	1.4
Fe	13.3	13.3	17.0
Ni	69.3	69.3	83.3
Si	7.2	7.2	6.5
Mg	-	0.0	0.6
Cr	0.1	0.1	0.4
Te	11.6	11.6	9.0
As	14.4	14.4	19.3
Se	5.5	6.5	10.1
Sb	14.3	14.3	11.8
Cd	3.0	3.0	2.1
Bi	5.0	5.0	4.8

Ag	141.0	141.0	121.9
Co	0.8	0.8	0.4
Al	1.3	1.3	0.9
S	13.9	13.9	17.7
Cu	99.94	99.94	99.94

6. Electrolytically refined copper cathode and copper scrap were melted at 1150° C. A fluxing agent was introduced at a rate of 8 kg per ton of scrap. The reaction was allowed to proceed for 30 minutes and a slag was then removed.



7. After removal of the slag, air was injected into the furnace to increase the oxygen concentration up to 2500 grams per ton. A second fluxing material was introduced and after about 30 minutes, a second slag was removed. After removed the second slag, As, Sb, and Sn were removed by increasing the concentration of oxygen in the molten material up to 6000-8000 grams per ton (ppm) and introducing 10 Kg of a third fluxing agent per ton of copper. After 30 minutes the contents of the elements were tested to determine whether they were within previously established margins. Once positive, the oxygen content in the molten product was reduced to 200 grams per ton (ppm). The metal was analyzed and, where necessary, lead and other metals were added to obtain the desired concentrations.

8. The copper microalloy was then cast by adjusting the temperature to 1150° C, casting the copper microalloy according to the "Continuous Proper" system with a casting speed of 12-15 tons per hour, and solidifying and rolling to obtain an 8 mm rod.

9. Samples 1 and 2 showed cracks and breakages in the rods cast, thereby preventing them from being rolled. In contrast, Sample 3 did not exhibit cracks and breakages and therefore could be rolled. Copper microalloy is typically sold as a rolled product.

I hereby declare that all statements of my own knowledge are true and that these statements were made with the knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that said wilful false statements may jeopardize the validity of the application or any patent issued therein.

Dated: April, 1st, 2003


Dr. Ferran Espiell